



EXPERIMENT NO. 1 DETERMINATION OF SPECIFIC GRAVITY BY U-TUBE

INTRODUCTION:

Specific gravity is defined as the ratio of the unit weight of a liquid to the unit weight of water. There are various methods of determining the specific gravity of a liquid. One is by using the pressure or pressure head equation.

OBJECTIVE:

This activity aims to determine the specific gravity of an unknown liquid using a U-tube manometer.

SPECIMEN:

Liquid of unknown specific gravity

APPARATUS AND SUPPLIES:

U-tube manometer
 Beaker
 Dropper

PROCEDURE:

1. Pour some amounts of the liquid of unknown specific gravity into the tube until the liquid reaches a level of approximately ____mm.
2. Pour water into both ends to a height of at least ____mm from the level of liquid.
3. Pour an additional amount of water into the right leg of the U-tube until there is a noticeable difference in water level.
4. Record the height of the water level and the unknown liquid level in the two legs of the manometer.
5. Repeat steps (3) and (4) for additional trials until the water is about to overflow.

DISCUSSION:

The problem of determining the specific gravity of a liquid is best solved by writing the equation of heads which should be express in terms of a single liquid.

From figure 1.1, the equation of heads is as follows:

$$0 + ab + \frac{bc}{sg} - \frac{cd}{sg} - de = 0$$

where sg is the specific gravity of the unknown liquid.

From the above equation we can determine the specific gravity

$$sg = \frac{cd - bc}{ab - de}$$

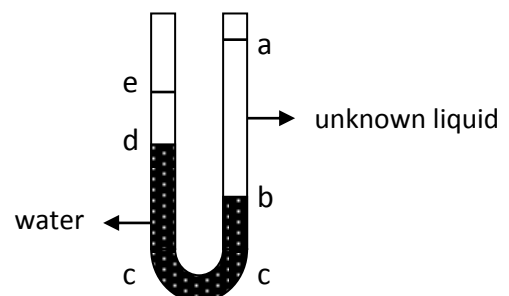


Fig. 1.1

DATA AND RESULTS:**Table 1.1 – Determination of Specific Gravity of Unknown Liquid by U-Tube**

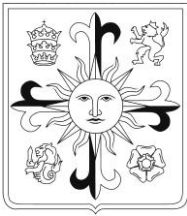
TRIAL	HEIGHT OF WATER in cm		HEIGHT OF UNKNOWN LIQUID in cm		SPECIFIC GRAVITY sg
	cd (left)	bc (right)	ab (right)	de (left)	
1					
2					
3					
4					
5					
6					
AVERAGE SPECIFIC GRAVITY					

PRECAUTIONS

1. Use a dropper in pouring the liquids. Unknown liquid may be harmful to your health.
2. Avoid smelling the unknown liquid.
3. Remove any trapped air inside by tapping or by using a bubble extracting device.

CLEANING PROCEDURE

1. Clean the apparatus before each trial.
2. After the experiment, dispose the unknown liquid properly.
3. Clean the apparatus and supplies with soap and water and dry them thoroughly before returning them.



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Year and Section		Date Started	
Group Number		Date Finished	
Group Members		Date Submitted	

1.1 DATA AND RESULTS:

Table 1.1 – Determination of Specific Gravity of Unknown Liquid by U-Tube

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AVERAGE SPECIFIC GRAVITY					

1.2 FORMULAS AND COMPUTATIONS:

1.3 DRAWINGS/SKETCHES/DIAGRAMS/GRAPHS:

1.4 SOURCES OF ERRORS:

1.5 REMARKS/CONCLUSION: